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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/847,355	05/03/2001	Donald Morris	032775-047	6889

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EXAMINER	
LAMBERTSON, DAVID A	

ART UNIT	PAPER NUMBER
1636	

DATE MAILED: 02/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/847,355	MORRIS ET AL.	
	Examiner	Art Unit	
	David A. Lambertson	1636	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *26-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *26-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Receipt is acknowledged of a reply to the previous Office Action, filed October 29, 2003. Amendments were made to the claims.

Claims 26-33 are pending and under consideration in the instant application. Any rejection of record in the previous Office Action, mailed July 29, 2003, that is not addressed in this action has been withdrawn.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 33 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Specifically, the instant claim reads on a human being. This is because the claim does not limit the nature of the claimed composition of viable non-neoplastic cells in any manner. Although the cells that are obtained by the method of claim 26 are not present in a living organism, these cells can be transplanted into a living organism. This living organism can then represent a "composition of viable non-neoplastic cells comprising the cellular composition with a reduced amount of neoplastic cells" as indicated in the instant claims. This represents non-statutory subject matter, as human beings are not patentable.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 33 is rejected under 35 U.S.C. 102(b) as being anticipated by Strong et al (IDS reference; *EMBO J* **17**: 3351-3362, 1998; see entire document; henceforth Strong).

Claim 33 is being interpreted as a product by process claim, where in the composition that is claimed reads on any cell composition that is substantially free of neoplastic cells. Although the claim is dependent on the method of claim 26, the functional feature of the method of claim 26 (i.e., the absence of neoplastic cells) can be accomplished by alternative methods. In fact, a number of cellular compositions substantially lack neoplastic cells, thus any method of isolating such cells would result in a composition of cells such as those indicated in instant claim 33.

Strong describes NIH3T3 cells, which are non-neoplastic cells. This is evidenced by the fact that they are resistant to reovirus infection, and require transformation with oncogenes (such as ras mutants) in order to become infected by reovirus (see for example the Abstract and page 3356, the paragraph bridging the left and right columns and the subsequent paragraph on the left column). Although a small proportion of NIH3T3 cells are believed to undergo spontaneous transformation, this percentage is well beneath the standards set forth in the instant specification as qualifying under "substantially" free of neoplastic cells. As such, Strong teaches each and every element of claim 33, and thus anticipates the claim.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 26 and 33 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,596,268 (see entire document; henceforth '268).

'268 teaches a method for treating a population of neoplastic cells having an activated Ras-pathway by contacting the cells, *in vitro* (i.e., outside of a living organism), with any one of a modified adenovirus, a modified HSV, a modified vaccina virus, or a modified parapoxvirus (see for example column 5, lines 1-8). Specific embodiments of the modified viruses include HSV where the γ134.5 gene is modified (column 6, lines 20-44), vaccina virus with the E3L or K3L gene modified (see for example column 7, lines 9-31) or a parapoxvirus with the OV20.0L gene is modified (see for example column 6, lines 45-64). The viruses can be used against neoplasms consisting of almost any cancer, including lymphomas and leukemias (see for example column 10, lines 25-31), and can be used with hematopoietic neoplastic cells (see for example column 10, lines 43-45). Finally, '268 inherently teaches the cells achieved by practicing the method set forth above, because the method necessarily leads to the production of a cellular composition that is substantially lacking in neoplastic cells. Therefore, '268 anticipates the cellular composition of claim 33.

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Claims 26 and 33 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,649,157 (see entire document; henceforth '157).

'157 teaches a method for treating a population of neoplastic cells having an activated Ras-pathway by contacting the cells, *in vitro* (i.e., outside of a living organism), with any one of a modified adenovirus, a modified HSV, a modified vaccina virus, or a modified parapoxvirus (see for example column 5, lines 9-16). Specific embodiments of the modified viruses include HSV where the γ134.5 gene is modified (column 6, lines 28-52), vaccina virus with the E3L or K3L gene modified (see for example column 7, lines 6-39) or a parapoxvirus with the OV20.0L gene is modified (see for example column 6, line 53 to column 7, line 5). The viruses can be used against neoplasms consisting of almost any cancer, including lymphomas and luekemias (see for example column 10, lines 32-38), and can be used with hematopoietic neoplastic cells (see for example column 10, lines 50-52). Finally, '157 inherently teaches the cells achieved by practicing the method set forth above, because the method necessarily leads to the production of a cellular composition that is substantially lacking in neoplastic cells. Therefore, '157 anticipates the cellular composition of claim 33.

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 27-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over '268 or '157 as set forth above in the rejection of claims 26 and 33 under 35 USC 102(e), in view of Stewart *et al.* (IDS reference; see entire document; henceforth Stewart).

'268 and '157 teach all of the elements set forth in the rejection of claims 26 and 33 under 35 USC 102(e). However, neither '268 nor '157 specifically teach using hematopoietic cells or cells that have been cultured in the method.

Stewart teaches that blood stem cells (i.e., hematopoietic stem cells, which are generated by bone marrow) are prevalently used for the treatment of a variety of cancers (such as leukemias and lymphomas), although a recurring problem with the use of these cells is tumor contamination (i.e., the presence of neoplastic cells in the transplanted ccompositions) (see for example the paragraph bridging the left and right columns of page 111). Stewart also teaches that cellular purging *in vitro* is often used to try and prevent this tumor contamination, although the methods are not very efficient. Stewart further teaches a method for obtaining the blood stem cells, and culturing the cells prior to their transplantation back into afflicted patients (see for example page 112, right column).

The ordinary skilled artisan would have been motivated to combine the teachings of '268 or '157 with those of Stewart because both teachings involve the "purging" of hematopoietic

cells for the removal of neoplastic cells, therefore the teachings can be used together based on their related nature. The ordinary skilled artisan would have been motivated to combine the teachings because, as taught by Stewart, the contamination of blood stem cells with neoplastic cells is a recurring problem that has ineffective "purging" methods to overcome the problem, and '268 and '157 teach an efficient purging method that is indicated to be useful with hematopoietic cells for treating cancers such as lymphomas and leukemias, and is therefore able to overcome a persistent problem in the art. Absent evidence to the contrary and given the teachings of the prior art, the skilled artisan would have had a reasonable expectation of success when practicing the claimed invention.

As a result of the combined teachings, the limitations of claims 27 (the "purging" of hematopoietic stem cells, i.e., blood stem cells), claim 28 (harvested from bone marrow-the stem cells are originally generated there, and must necessarily be harvested from there, albeit indirectly), claim 29 (harvested from blood), claims 30 and 31 (blood is technically a tissue), and 32 (the cells are cultured in the method of Stewart) are all taught, and made obvious.

Allowable Subject Matter

No claims are allowable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Lambertson whose telephone number is (571) 272-0771. The examiner can normally be reached on 6:30am to 4pm, Mon.-Fri., first Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Remy Yucel, Ph.D. can be reached on (571) 272-0781. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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AU 1636

JAMES KETTER
PRIMARY EXAMINER